

PTO/SB/21 (03-03)

Approved for use through 04/30/2003. OMB 0651-0031

U.S. Patent and Trademark Office; U.S. DEPARTMENT OF COMMERCE

Under the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

**TRANSMITTAL  
FORM**

(to be used for all correspondence after initial filing)

Total Number of Pages in This Submission

Application Number	10/614,807
Filing Date	July 9, 2003
First Named Inventor	Wuwen Yi
Art Unit	1737
Examiner Name	Unknown
Attorney Docket Number	H0004116-US

**ENCLOSURES** (Check all that apply)

<input type="checkbox"/> Fee Transmittal Form <input type="checkbox"/> Fee Attached <input type="checkbox"/> Amendment/Reply <input type="checkbox"/> After Final <input type="checkbox"/> Affidavits/declaration(s) <input type="checkbox"/> Extension of Time Request <input type="checkbox"/> Express Abandonment Request <input checked="" type="checkbox"/> Information Disclosure Statement <input type="checkbox"/> Certified Copy of Priority Document(s) <input type="checkbox"/> Response to Missing Parts/ Incomplete Application <input type="checkbox"/> Response to Missing Parts under 37 CFR 1.52 or 1.53	<input type="checkbox"/> Drawing(s) <input type="checkbox"/> Licensing-related Papers <input type="checkbox"/> Petition <input type="checkbox"/> Petition to Convert to a Provisional Application <input type="checkbox"/> Power of Attorney, Revocation Change of Correspondence Address <input type="checkbox"/> Terminal Disclaimer <input type="checkbox"/> Request for Refund <input type="checkbox"/> CD, Number of CD(s) _____	<input type="checkbox"/> After Allowance Communication to a Technology Center (TC) <input type="checkbox"/> Appeal Communication to Board of Appeals and Interferences <input type="checkbox"/> Appeal Communication to TC (Appeal Notice, Brief, Reply Brief) <input type="checkbox"/> Proprietary Information <input type="checkbox"/> Status Letter <input checked="" type="checkbox"/> Other Enclosure(s) (please Identify below): 2 return receipt postcards
<b>Remarks</b>		

**SIGNATURE OF APPLICANT, ATTORNEY, OR AGENT**

Firm or Individual	Jennifer J. Taylor, Ph.D.; Reg. No. 48,711; Wells St. John P.S.
Signature	<i>Jennifer J. Taylor</i>
Date	November 18, 2003

**CERTIFICATE OF TRANSMISSION/MAILING**

I hereby certify that this correspondence is being facsimile transmitted to the USPTO or deposited with the United States Postal Service with sufficient postage as first class mail in an envelope addressed to: Commissioner for Patents, Washington, DC 20231 on this date: November 18, 2003

Typed or printed	Jaime M. White		
Signature	<i>Jaime M. White</i>	Date	11-18-2003

This collection of information is required by 37 CFR 1.5. The information is required to obtain or retain a benefit by the public which is to file (and by the USPTO to process) an application. Confidentiality is governed by 35 U.S.C. 122 and 37 CFR 1.14. This collection is estimated to take 12 minutes to complete, including gathering, preparing, and submitting the completed application form to the USPTO. Time will vary depending upon the individual case. Any comments on the amount of time you require to complete this form and/or suggestions for reducing this burden, should be sent to the Chief Information Officer, U.S. Patent and Trademark Office, U.S. Department of Commerce, Washington, DC 20231. DO NOT SEND FEES OR COMPLETED FORMS TO THIS ADDRESS. SEND TO: Commissioner for Patents, Washington, DC 20231.

If you need assistance in completing the form, call 1-800-PTO-9199 (1-800-786-9199) and select option 2.



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Application Serial No. .... 10/614,807  
Filing Date .... July 9, 2003  
Inventor .... Wuwen Yi et al.  
Assignee .... Honeywell International Inc.  
Group Art Unit .... 1737  
Examiner .... Unknown  
Attorney's Docket No. .... H0004116-US  
Title: Copper Sputtering Targets and Methods of Forming Copper Sputtering Targets

INFORMATION DISCLOSURE STATEMENT

To: Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

From: Jennifer J. Taylor, Ph.D. (Tel. 509-624-4276; Fax 509-838-3424)  
Wells St. John P.S.  
601 W. First Avenue, Suite 1300  
Spokane, WA 99201-3828

Dear Sir:

The attached form PTO-1449 is submitted in compliance with 37 CFR § 1.56. Copies of the cited art are included with the exception of U.S. patents and published U.S. applications (1276 OG 55). No admission is made regarding whether all the submitted references are prior art.

Respectfully submitted,

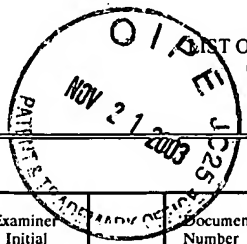
Dated:

November 18, 2003

By:

Jennifer J. Taylor  
Jennifer J. Taylor, Ph.D.  
Reg. No. 48,711

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. H0004116-US	SERIAL NO. 10/614,807	
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Vladimir Segal et al.		
				FILING DATE July 9, 2003	GROUP 1737	
U.S. PATENT DOCUMENTS						
Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA 4,619,695	10-1986	Oikawa et al.			
	AB 5,772,860	06-1998	Sawada et al.			
	AC 5,993,621	11-1999	Liu			
	AD 5,798,005	08-1998	Murata et al.			
	AE 5,282,946	02-1994	Kinoshita et al.			
	AF 5,993,575	11-1999	Lo et al.			
	AG 5,809,393	09-1998	Dunlop et al.			
	AH 5,780,755	07-1998	Dunlop			
	AI 5,468,401	11-1995	Lum			
	AJ 5,087,297	02-1992	Pouliquen			
	AK 5,693,203	12-1997	Ohhashi			
	AL 5,400,633	03-1995	Segal			
FOREIGN PATENT DOCUMENTS						
	Document Number	Date	Country	Class	Subclass	Translation
						Yes      No
	AM 590904	04/1994	EP	C23C	14/34	
	AN 9201080	01/1992	PCT	C23C	14/35	
	AO 610107	01/1994	Japan (*transl. of Abst)	C22	18	X*
	AP 693400	04/1994	Japan (*transl. of Abst)	C22	18	X*
	AQ 6256919	09/1994	Japan (*transl. of Abst)	C22	18	X*
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)						
	AR	C. Klein et al., "Manual of Mineralogy", pp 39-40				
	AS	S. Wright et al. "Effect of Annealing Temperature on the Texture of Rolled Tantalum and Tantalum-10 Wt.% Tungsten, reprinted from <u>Tungsten and Refractory Metals 2</u> , pp 501-508				
	AT	H-R Wenk, "Preferred Orientation in Deformed Metals and Rocks: An Introduction to Modern Texture Analysis", 1985, pp 8-10				
EXAMINER			DATE CONSIDERED			
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>						

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. H0004116-US	SERIAL NO. 10/614,807			
 <b>LIST OF ART CITED BY APPLICANT</b> (Use several sheets if necessary)				APPLICANT Vladimir Segal et al.				
				FILING DATE July 9, 2003	GROUP 1737			
U.S. PATENT DOCUMENTS								
*Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate		
	AA	5,513,512	05-1996	Segal				
	AB	5,590,389	12-1996	Dunlop				
	AC	5,600,989	02-1997	Segal				
	AD	5,673,581	10-1997	Segal				
	AE	5,074,907	12-1991	Amato et al.				
	AF	4,525,417	06-1985	Dimigen et al.				
	AG	4,663,120	05-1987	Parent et al.				
	AH	4,762,558	08-1988	German et al.				
	AI	4,889,745	12-1989	Sata				
	AJ	5,330,701	07-1994	Shaw et al.				
	AK	5,418,071	05-1995	Satou et al.				
	AL	5,508,000	04-1996	Satou et al.				
FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AM	08269701	10/1996	Japan			X	
	AN	08232061	06/1996	Japan			X	
	AO	882 813	12/1998	EPO				
	AP	WO 99/66100	12/1999	PCT				
	AQ	WO 87/07650	12/1987	PCT				
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)								
	AR		B.D. Cullity, "Structure of Polycrystalline Aggregates", <u>Elements of X-ray Diffraction</u> , pp 294-297					
	AS							
	AT		ASM Handbook, Vol. 4, 1991, "Heat Treating of Aluminum Alloys", pgs. 841-879.					
EXAMINER				DATE CONSIDERED				
*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.								

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. H0004116-US	SERIAL NO. 10/614,807
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Vladimir Segal et al.	
				FILING DATE July 9, 2003	GROUP 1737

U.S. PATENT DOCUMENTS							
		Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	5,608,911	03-1997	Shaw et al.			
	AB	4,842,706	06-1989	Fukasawa et al.			
	AC	4,960,163	10-1990	Fang et al.			
	AD	5,850,755	12-1998	Segal			
	AE	5,456,815	10-1995	Fukuyo et al.			
	AF	5,826,456	10-1998	Kawazoe et al.			
	AG	5,413,650	05-1995	Jarrett et al.			
	AH	6,193,821	02-2001	Zhang			
	AI	6,348,113	02-2002	Michaluk et al.			
	AJ	6,085,966	07-2000	Shimomuki et al.			
	AK	6,024,852	02-2000	Tamura et al.			
	AL	5,798,005	08-1998	Murata et al.			

FOREIGN PATENT DOCUMENTS								
		Document Number	Date	Country	Class	Subclass	Translation	
							Yes	No
	AM							
	AN							
	AO	06264232	09/1994	Japan			X	
	AP	WO 00/31310	06/2000	PCT				
	AQ							

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)		
	AR	Mukai, T. et al, "Dynamic Mechanical Properties of a Near-Nano Aluminum Alloy Processed by Equal-Channel-Angular-Extrusion", Nano-Structured Materials, Vol. 10, No. 5, pp. 755-765 (1998) Elsevier Science Ltd.
	AS	Hatch, J.E., <u>ALUMINUM</u> , 1984, Chap. 5, "Metallurgy of Heat Treatment and General Principles of Precipitation Hardening", pp. 134-157, 175-183.
	AT	Ferrasse, S. et al., "Development of a Submicrometer-Grained Microstructure in Aluminum 6061 Using Equal Channel Angular Extrusion", J. Mater. Res. Vol. 12, No. 5, May 1997, pp. 1253-1261.

EXAMINER	DATE CONSIDERED
----------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. H0004116-US	SERIAL NO. 10/614,807		
<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 2em; font-weight: bold;">O I P E</div> <div style="position: absolute; top: 10%; left: 10%; font-size: 1.2em;">NOV 21 2003</div> </div> <p><b>LIST OF ART CITED BY APPLICANT</b> (Use several sheets if necessary)</p>				APPLICANT Vladimir Segal et al.			
				FILING DATE July 9, 2003		GROUP 1737	
<b>U.S. PATENT DOCUMENTS</b>							
	Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	5,231,306	07-1993	Meikle			
	AB	3,653,981	04-1972	Watanabe et al.			
	AC	3,849,212	11-1974	Thornburg			
	AD	5,766,380	06-1998	Lo et al.			
	AE	6,123,896	09-2000	Meeks, III et al.			
	AF	5,722,165	03-1998	Kobayashi et al.			
	AG	5,171,379	12-1992	Kumar et al.			
	AH	4,517,032	05-1985	Goto et al.			
	AI	5,772,795	06-1998	Lally et al.			
	AJ	6,221,178 B1	04-2001	Torizuka et al.			
	AK	4,466,940	08-1984	Siewert et al.			
	AL	4,883,721	11-1989	Nalepka et al.			
<b>FOREIGN PATENT DOCUMENTS</b>							
		Document Number	Date	Country	Class	Subclass	<div style="text-align: center;">Translation</div> <div style="display: flex; justify-content: space-around; font-size: 0.8em;"> <span>Yes</span> <span>No</span> </div>
	AM	08146201	07.06.1996	Japan			
	AN	10008244	13.01.1998	Japan			
	AO	WO 99/27150	03.06.1999	PCT			
	AP	WO 99/02743	21.01.1999	PCT			
	AQ	WO 01/29279 A1	26.04.2001	PCT			
<b>OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)</b>							
	AR	Ferrasse, S. et al., "Microstructure and Properties of Copper and Aluminum Alloy 3003 Heavily Worked by Equal Channel Angular Extrusion", Metallurgical and Materials Transactions A, vol. 28A, April 1997, pp. 1047-1057.					
	AS						
	AT	Material Evaluation Report, Ingot No. T891C, 03/25/98, 1 page.					
EXAMINER				DATE CONSIDERED			
<p><small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small></p>							

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. H0004116-US	SERIAL NO. 10/614,807
LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)				APPLICANT Vladimir Segal et al.	
				FILING DATE July 9, 2003	GROUP 1737

U.S. PATENT DOCUMENTS							
Examiner Initial	Class	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA	4,374,717	02-1983	Drauglis et al.			
	AB	5,623,726	04-1997	Kiiski et al.			
	AC	5,194,101	03-1993	Worcester et al.			
	AD	6,521,173	02-2003	Kumar			
	AE	4,844,746	07-1989	Hormann et al.			
	AF	6,348,139	06-1998	Shah			
	AG						
	AH						
	AI						
	AJ						

FOREIGN PATENT DOCUMENTS							
Examiner Initial	Class	Document Number	Date	Country	Class	Subclass	Translation
							Yes    No
	AM	03-082773	08.04.1991	Japan (abstract only)			
	AN	08-134606	28.05.1996	Japan (abstract only)			
	AO	252,442	09.06.1960	Australia			
	AP	55-179784	12/1980	Japan			
	AQ	EP 0 902 102 A1	03-1999	EPO			

OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)			
Examiner Initial	Class	Document Number	Reference
	AR		Hughes et al., "Grain Subdivision and the Development of Local Orientations in Rolled Tantalum" Tantalum, The Minerals, Metals & Materials Society, 1996, pgs. 257-262. (Year is sufficiently early so that the month is not an issue.)
	AS		Arlt, Jr., "Sulfonation and Sulfonation to Thorium and Thorium Compounds" Kirk-Othmer Encyclopedia of chemical Technology vol. 22, pp. 541-564, (1993, Year is sufficiently early so that the month is not an issue.)
	AT		Kirkbride et al., "The Effect of Yttrium on the Recrystallization and Grain Growth of Tantalum", J. Less-Common Metals, vol. 9, pp. 393-408, 1965. (Year is sufficiently early so that the month is not an issue.)

EXAMINER	DATE CONSIDERED
----------	-----------------

\*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. H0004116-US		SERIAL NO. 10/614,807	
<div style="position: relative; height: 100px;"> <div style="position: absolute; top: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 24px; font-weight: bold;">O I P</div> <div style="position: absolute; bottom: 0; left: 0; width: 100%; height: 100%; border: 1px solid black; border-radius: 50%; text-align: center; line-height: 100px; font-size: 24px; font-weight: bold;">NOV 21 2003</div> </div>				LIST OF ART CITED BY APPLICANT (Use several sheets if necessary)			
				APPLICANT Vladimir Segal et al.			
				FILING DATE July 9, 2003		GROUP 1737	
U.S. PATENT DOCUMENTS							
	Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA						
	AB						
FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	<div style="text-align: center;">Translation</div> <div style="display: flex; justify-content: space-around; font-size: 0.8em;"> <span>Yes</span> <span>No</span> </div>
	AC	62-297463	12-1987	Japan			X
	AD	03-197640	08-1991	Japan			X
	AE	EP0281141B2	03-1988	EPO			
	AF	59227992A	12-1984	Japan			
	AG						
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
	AH		National Research Corporation Press Release, pgs. 1-4, July 1964.				
	AI		National Research Corporation Data Sheet "SGS Tatalum", pgs. 1-7; no date.				
	AJ		Friedman, "Grain Size Refinement in a Tantalum Ingot", Metallurgical Transactions, Vol. 2 No. 1, January 1971, pages 337-341.				
	AK		"Nickel, Cobalt and Their Alloys", pub. By ASM International, December 2000, pages 76, 230-234.				
	AL		Ruglic, "Normalizing of Steel" ASM Handbook, Vol. 4 Heat Treating, 1991, pgs. 35-41.				
	AM		Canonico, "Stress-Relief Heat Treating of Steel", ASM Handbook Vol 4: Heat Treating ASM International, 1991, pages 33-34.				
	AN		ASTM Standard Specification for Tantalum and Tantalum Alloy Plate, Sheet, and Strip, pgs. 558-561, 1992. (Year s sufficiently early so that the month is not an issue.)				
EXAMINER				DATE CONSIDERED			
<p><small>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</small></p>							



Form PTO-1449		U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE		ATTY. DOCKET NO. 30-5004DIV1		SERIAL NO. 09/912,476	
<div style="display: flex; align-items: center;"> <div> <p><b>LIST OF ART CITED BY APPLICANT</b> (Use several sheets if necessary)</p> </div> </div>				APPLICANT Vladimir Segal et al.			
				FILING DATE July 24, 2001		GROUP 1742	
U.S. PATENT DOCUMENTS							
	Examiner Initial	Document Number	Date	Name	Class	Subclass	Filing Date If Appropriate
	AA						
FOREIGN PATENT DOCUMENTS							
		Document Number	Date	Country	Class	Subclass	Translation
							Yes No
	AB						
OTHER REFERENCES (including Author, Title, Date, Pertinent Pages, Etc.)							
	AD		Susumu Sawada, "On Advanced Sputtering Targets of Refractory Metals and Their Silicides for VLSI-Applications", 12 <sup>th</sup> International Plansee Seminar (1989) Topic 5: Ultrapure Refractory Metals, pp. 201-222.				
	AE		Kumar, et al., "Effect of Intermetallic Compounds of the Properties of Tantalum" Materials Research Society Symposium Proceedings, vol. 322, pgs. 413-422, 1994. (Year is sufficiently early so that the month is not an issue.)				
	AF		Kumar, et al., "Effect of Intermetallic Compounds of the Properties of Tantalum" Refractory Metals & Hard Materials, vol. 12, pgs. 35-40, 1994. (Year is sufficiently early so that the month is not an issue.)				
	AG		Klein et al., "Inhomogeneous Textures in Tantalum Sheets" Materials Science Forum, vol. 157-162, pgs. 1423, (1994). (Year is sufficiently early so that the month is not an issue.)				
	AH		Clark et al., "Influence of Transverse Rolling on the Microstructural and Texture Development in Pure Tantalum", Metallurgical Transactions, vol. 23A, pgs. 2183-2191, August 1992.				
	AI		Raabe, et al., "Texture and Microstructure of Rolled and Annealed Tantalum", Materials Science and Technology, Vol. 10, pgs. 299-305, April 1994.				
	AJ		Wright et al., "Texture Gradient Effects in Tantalum", International Conference on Textures of Materials, 7 pgs., September 1993.				
	AK		Wright et al., "Textural and Microstructural Gradient Effects on the Mechanical Behavior of a Tantalum Plate", Metallurgical Transactions A, 25A (1994), pgs. 1-17. (Year is sufficiently early so that the month is not an issue.)				
	AL		Clark et al., "Effect of Processing Variables on Texture and Texture Gradients in Tantalum", Metallurgical Transactions A, Vol. 22A, September 1991, pgs. 2039-2047.				
	AM		Kumar et al., "Corrosion Resistant Properties of Tantalum" Corrosion 95, Paper No. 253, 14 pages. (No date)				
	AN						
	AO		V.M. Segal, "Materials Processing by Simple Shear", Materials Science and Engineering A, Volume 197, 1995, pgs. 157-164. (Year is sufficiently early so that the month is not an issue.)				
	AP		P. Ding et al., "Copper Barrier, Seed Layer, and Planarization Technologies", June 10-12, 1997 VMIC Conference, pp. 87-92.				
EXAMINER				DATE CONSIDERED			
<p>*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609; Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.</p>							